

Overview of 219.13(b) Ecological Sustainability

Option 2

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Diversity Options Workshop
Overview of Option 2

Considerations in Development of Option 2

- **Provide clear, scientifically credible alternative to Option 1 (stimulate public input)**
- **Focus attention on evaluation of biological diversity – incorporates statutory language of NFMA, consistent with progress in ecology & conservation biology**
- **Hierarchical analyses of diversity at ecosystem and species levels of organization – primary focus on analyses at landscape & ecosystem scales, attention to species of concern nested within larger-scale ecosystem analyses**
- **Require evaluation of biological diversity across multiple, relevant scales of space & time – emphasize evaluations at large scales**
- **Focus explicit attention on spatial relations and linkages of elements of biological diversity**
- **Consider effects of disturbance regimes and landscape context on ability to achieve biological diversity objectives**
- **Evaluate differences in ecological structure & condition between NFS lands and surrounding landscape**
- **Require rigorous, structured suite of analyses of biological diversity, tailored to plan area & planning issues**

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Broad Features of Option 2

- **Focuses on broad objective of maintaining and restoring biological diversity in plan area, with two more specific goals**
 - **Maintain and restore diversity of ecosystems within landscapes**
 - **Within framework of larger-scale ecosystem analyses, maintain and restore diversity of species within ecosystems**
- **Three assumptions/hypotheses inherent in Option 2 (also Option 1)**
 - **Maintenance & restoration of biological diversity essential to long-term sustainability, function & resilience of native & managed ecosystems**
 - **Maintenance & restoration of biological diversity a primary indicator or surrogate measure for maintenance of key ecological processes in ecosystems**
 - **Providing for biological diversity in forest plans requires that ecological information and analyses be linked to scientifically based monitoring and adaptive management**

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Summary of Ecological Information & Analyses

- **Option based on hierarchical, structured approach to consider & assess biological diversity at two levels of ecological organization, ecosystem & species**
- **Analyses of biological diversity – proportional to planning issues, risks to diversity, availability of information**
- **Where appropriate, analyses should extend to larger landscape in which plan area is embedded**
- **Ecological information and analyses based upon assessment of**
 - **Ecosystem diversity and species diversity**
 - **Further evaluations of diversity – spatial and temporal scales and patterns, human and natural disturbance regimes, landscape context**
- **Analyses should describe & assess contributions of NFS lands to biological diversity in larger landscape**
- **Ecological information & analyses – tailored to particular planning or assessment area, specific planning issues**

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Consideration & Evaluation of Ecosystem Diversity

- **Core approach and primary focus of ecological information & analyses**
- **Characteristics of ecosystem diversity include but are not limited to – ecological composition, structure & processes; geology & landforms; soil, water & air resources**
- **Evaluations of ecosystem diversity in planning or assessment area– identify ecosystems present and characterize structure, composition, processes, extent, distribution & spatial relations**
 - **Evaluate status of & risks to characteristics of ecosystem diversity, including impacts of plan decisions/management direction**
 - **Evaluate condition & quality of water & air resources; condition of stream networks/channels & watersheds; and quality & productivity of soils**
 - **Estimate consumptive & non-consumptive NFS water needs and quantity/quality of water to support these**
 - **Identify unique/rare/at risk ecosystems or structural/compositional elements, risks or threats, and measures required for conservation or restoration**

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Consideration & Evaluation of Species Diversity

- **More complete understanding of impacts of plan decisions/management direction on biological diversity, including status of species and ecosystems in which occur**
- **In hierarchical context, species analyses conducted within framework of, and incorporate information from, larger-scale ecosystem analyses**
- **Two tracks for species analyses:**
 - **Community analyses – determine whether maintenance of ecosystem diversity sufficient to maintain integrity of existing species pool**
 - **Individual species analyses – evaluate impacts of plan decisions/management direction on species selected for analysis**
- **Individual species selected for analysis to:**
 - **Address particular planning issue(s)**
 - **Develop more complete understanding of condition & trends of ecosystems**
 - **Where substantive concerns exist regarding continued persistence of particular species (*must* identify & evaluate such species)**

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**Consideration & Evaluation of Species Diversity
(continued)**

- **Characteristics of species diversity include but are not limited to –**
 - **Composition & richness of existing species pool**
 - **Abundance, spatial distribution, geographic range, population trends & status of individual species selected for analysis**
- **Evaluations of species diversity in planning or assessment area**
 - **Identify species or species groups present, and where feasible, compile information on species status, distribution, range, abundance & trends**
 - **Analyze composition & distribution of communities & species assemblages**
 - **Analyze impacts of plan decisions/management direction on species**
 - **Identify species for which continued persistence at risk, risks or threats, measures required for conservation or restoration**

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Further Analyses of Biological Diversity

- **Consider & evaluate spatial and temporal scales and patterns**
 - **Follow spatially explicit approach to evaluations of biological diversity – consider specific landscape features (ecosystems & populations) as well as spatial linkages & relations**
 - **Evaluate biological diversity across appropriate scales of space & time – determined by Responsible Official relevant to planning issues & ecological structure of plan area & surrounding landscape; space & time scales linked**
 - **Special attention to analyses at large scales – including dynamics of vegetation processes & wide-ranging vertebrate species, cumulative impacts (encourage collaborative planning across NFS administrative units)**
- **Consider & evaluate disturbance regimes (natural & human induced)**
 - **Disturbance regimes can significantly impact options & opportunities to achieve biological diversity objectives**
 - **Characterize current & past disturbance regimes (spatial extent & distribution, periodicity, type, intensity), and evaluate impacts on biological diversity**
 - **Evaluate impacts of plan decisions/management direction on disturbance regimes, and consequences of altered disturbance regimes for biological diversity**

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Further Analyses of Biological Diversity (continued)

- **Consider & evaluate landscape context**
 - **Consider and evaluate landscape context for assessments of biological diversity – i.e., characterize & evaluate ecological condition, structure and land use history of planning or assessment area and effects on biological diversity**
 - **Consider & evaluate differences in ecological condition & structure between NFS lands and adjacent or interspersed ownerships; based on this information:**
 - ◆ **Identify & evaluate options for & any special role of NFS lands to contribute to maintenance or restoration of biological diversity in larger landscape, especially unique or rare elements of diversity**
 - ◆ **Identify & evaluate factors that limit options & opportunities to achieve biological diversity objectives**

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Plan Decisions

- **In reaching plan decisions, must consider and fully disclose results of ecological information & analyses**
- **Plan decisions - consistent with multiple use objectives of plan**
- **Biological Diversity – should foster maintenance or restoration of biological diversity in plan area, at ecosystem *and* species levels, within range of diversity characteristic of native ecosystems in surrounding landscape in which plan area embedded**
 - **Should consider effects of disturbance regimes and landscape context on options & opportunities to manage NFS lands to achieve biological diversity objectives**
 - **Standard applies at *both* ecosystem *and* species levels of organization**
 - **Provides a level of management flexibility – does not extend to loss of ecosystems *or* species of concern (diversity – both richness & equitability)**
 - **Successful implementation requires rigorous monitoring information on status of ecosystems & select species, and historical information on expected range of diversity**
- **Landscape Context – must identify and evaluate special role and unique contributions of NFS lands to maintain and restore biological diversity in larger landscape in which plan area embedded**